



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D4766-041
Job Sheet 178313



Part No: D4766-041

Job Qty: 1 ea

Part Name: Skidtube Assembly



Part Weight: 0 lbs

Status: Scheduled

Priority: High

Job Created: 5/29/18

Job Tracking No:

Due Date: 6/22/18

Created By: Jesse White

Type: SOLD

Description:

Note: DWG REV E IPP REV:A 13.04.17 NEW ISSUE DD VERF:JLM IPP REV:B 13.08.08 PB2 DD VERF:JLM IPP
REV:B 13.08.26 PB3 DD VERF:JLM IPP REV:C 13.11.14 AS PER DWG REV.B DD VERF:JLM IPP REV:D
15.06.10 AS PER DWG REV.C DD VERF:JLM IPP REV:E 16.03.23 AS PER DWG REV.D DD VERF:JLM

Ship Via:

Bill of Materials



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

Container No: S077106



Part: D4766-041

Job No: 178313

Serial No/Batch: S077106

Revision:

Inspector:

Exp Date: 06/01/2018

Instructions:

Date: 06/01/18

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up	1 Ea		6/22/18	0.00	0.00	Start Up Skidtubes		BE
110	CNC Bend Skidtubes	1 pcs		6/22/18	0.00	1.00	CNC Bend Skidtube		BE
120	Skidtubes	1 pcs		6/22/18	0.00	3.44	Skid tubes-3		BE DAS
140	QC	1 pcs		6/22/18	0.00	0.00	QC5		38
150	HandFinish	1 pcs		6/22/18	0.00	0.62	HandFinish1		SA 18-06-15
160	QC	1 pcs		6/22/18	0.00	0.00	QC7-4		BE
170	Skid tubes	1 pcs		6/22/18	0.00	3.44	Skid tubes-3		BE
180	QC	1 pcs		6/22/18	0.00	0.00	QC5		BE
185	Skid tubes	1 pcs		6/22/18	0.00	3.44	Skid tubes-3		BE
188	QC	1 pcs		6/22/18	0.00	0.00	QC5		BE
210	HandFinish	1 pcs		6/22/18	0.00	0.62	HandFinish2		SA 18-6-27
220	Spray Paint	1 pcs		6/22/18	0.00	0.78	Spray Paint		BE 18-06-27
230	QC	1 pcs		6/22/18	0.00	0.00	QC14		BE
260	HandFinish	1 pcs		6/22/18	0.00	0.62	HandFinish4		BE
270	QC	1 pcs		6/22/18	0.00	0.00	QC5		BE
300	Packaging	1 pcs		6/22/18	0.00	0.00	Packaging3-2		BE
310	QC21-SA	1 Ea		6/22/18	0.00	0.00	QC21		BE

Part Op 110 - *****ROUTE NEED TO BE REVISE AS PER THE LATES REV PROCESS***** 1- Bend FWD end as per dwg

Descriptions: and folio 2- Cut FWD end as per dwg using DT8185 ***VERIFY MESUREMENT***

120 - 1- Cut Aft end as per dwg D4766 2- Deburr ends 3-Drill Aft & Fwd Cap holes using DT8678 & DT8901***DO NOT OPEN AFT CAP HOLES*** 4- Locate DT Pilot Drill all X-Bolt holes using #30" drill. & Drill Ground wire hole on top of Tube. 5-Drill holes for D5520-1 doubler using DT10309 A & B, locating from 7th and 8th crossbolt holes from aft using .1875 clekos. Spot drill tube using #20 drill (note 10). Remove DT10309 B. Re-install DT 10309 A drill thru tube and doubler using #20 drill (note 10), cleko as you go. Remove .1875 clekos and open holes in tube and doubler to 0.750". Remove doublers and identify orientation. 6-Countersink rivet holes in skid tube detail M ***NOTE*** 29 places only. 6- Open ground wire hole .297" section D-D (1) place and detail "I" (2) place. 7- Open Aft & Fwd Cap holes using 0.208" drill. 8- Deburr holes. 9--Touch up alodine on D5520-1 doublers.

170 - 1-Install doublers using DT10309 B. Shave rivets as required. Detail M. 2- Bond web as per Dwg D4766 & QSI 015 A/R 241 Sika Flex Batch: 138787 Exp Date: DEC 22 2018 start time: 18-06-18 end time: 18-06-19 ***NOTE, 35.9" FROM AFT END AS PER DWG D4766. SHEET 6

185 - 1- Bend aft tube as per dwg VERIFY HEIGHT and record: 6.56 2- Remove bending mark and mark center line on end of tube 3- Drill AFT float holes using DT A,B,C. 4- Open X-Bolt holes to size as per Dwg D4766 and detail K 5- Drill Rivet Holes as per Dwg D4766 Using DT10065 6- Deburr Rivet holes & 0.750" holes and touch up alodine rivet holes only. 7- Seal all faying surfaces using proseal and rivet Doubler as per Dwg D4766. A/R Proseal Batch: 138784 12H CURE TIME START TIME: 9/18 18/06/18 NOTE: SHAVE RIVET AFTER 12HRS CURE TIME. 8- Ream holes to finish size and Swage x-bolt spacers as per Dwg D4766 and section C-C 9- Trim/Grind flush per QSI 002 10- Swage x-bolt spacer as per dwg D4766 section G-G. Trim and grind flush. Open thru holes 0.625". 11- Deburr and blow out chips from inside of tube.

210 - Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

220 - 1- Apply Primer as per QSI 005 4.2.1.3.3 and dwg A/R Primer Batch: _____ 2- Paint White as per QSI 005 4.2.2.4 and dwg A/R Paint Batch: _____

260 - 1- Install Ground Wire inserts as per Dwg D4766. 2-Inspect for Foreign objects 3-Wet Install hose shield D5534-1 section P-P and note 12. A/R Proseal Batch: _____ 12H CURE TIME START TIME: _____

NOTE: SHAVE RIVET AFTER 12HRS CURE TIME. 4- Install Fwd & Aft caps as per Dwg D4766 and Detail "A" & "B". Fastener must be install wet as per note (9). A/R 241 Sika Flex Batch: _____ Exp Date: _____

5- Wing Walk as per Dwg D4766 and QSI 005 4.4 Batch: _____

004157

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D4766-041-BENT	Extrusion Bent	1 Ea (1 ea)	90-Start up Operation	F 3164802
D5520-1	Doubler	2 Ea (2 ea)	120-Skidtubes	3045659
CR3212-5-05	Rivet	58 pcs (58 ea)	170-Skidtubes	306120
CR3213-5-06	Cherry Rivet	10 Ea (10 ea)	170-Skidtubes	8146172
D5085-1	Web	1 Ea (1 ea)	170-Skidtubes	8146172
D5534-1	Hose Shield	2 Ea (2 ea)	170-Skidtubes	F164807
D2973	Cross Bolt Spacer	2 Ea (2 ea)	185-Skidtubes	3063873
D4686-1	Spacer	11 Ea (11 ea)	185-Skidtubes	3083133
D4753-1	Doubler	22 Ea (22 ea)	185-Skidtubes	3055010
D5304-1	Crossbolt Spacer	2 Ea (2 ea)	185-Skidtubes	3066193-1
MS20601-AD4W3	Rivet	44 Ea (44 ea)	185-Skidtubes	3007279
AELS-1032-130	Rivnut	3 Ea (3 ea)	260-HandFinish	3068642
AN3C4A	Bolt	3 Ea (3 ea)	260-HandFinish	3657157
AN3C5A	Bolt	2 Ea (2 ea)	260-HandFinish	30716642
AN526C1032R10	Screw	2 Ea (2 ea)	260-HandFinish	3045482
D2965	Cap	1 Ea (1 ea)	260-HandFinish	3126369
D2965-3	Cap	1 Ea (1 ea)	260-HandFinish	3056492
NAS1149C0332R	Washer	5 Ea (5 ea)	260-HandFinish	

Job Allocations

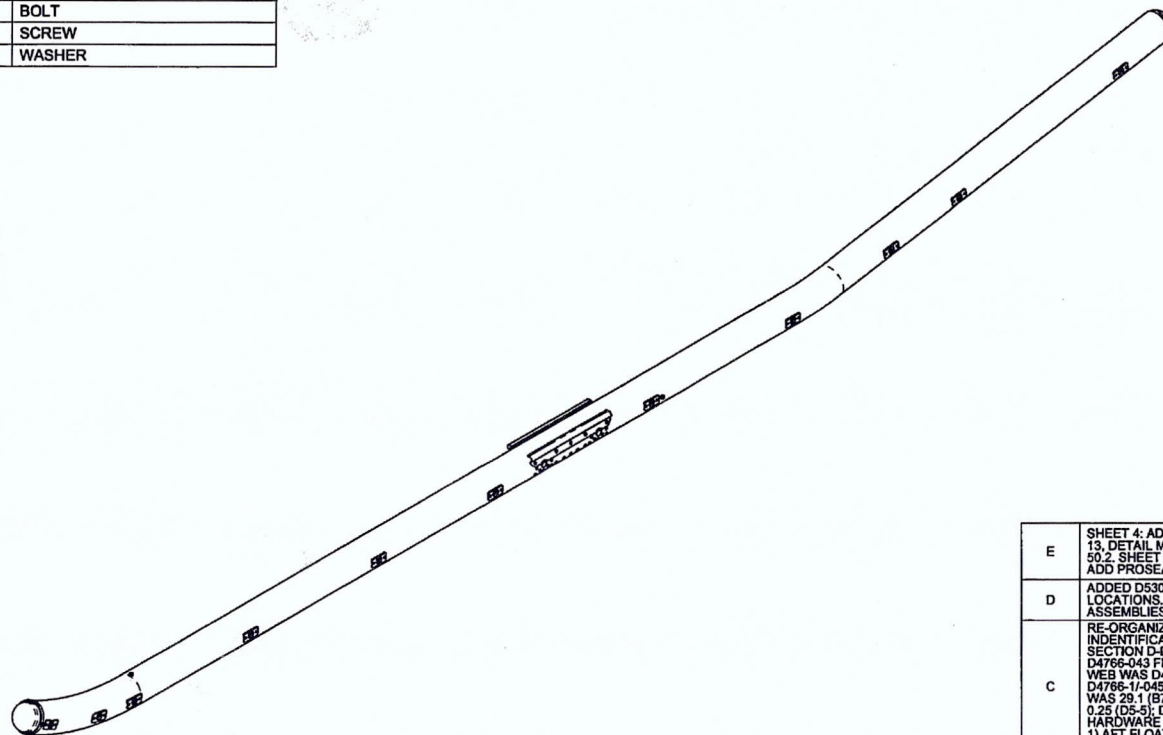
Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D4766-041-BENT	1	2	0
120-Skidtubes	D5520-1	2	18	0
170-Skidtubes	CR3212-5-05	58	746	0
	CR3213-5-06	10	81	0
	D5085-1	1	4	0
	D5534-1	2	4	0
185-Skidtubes	D2973	2	32	0
	D4686-1	11	98	0
	D4753-1	22	68	0
	D5304-1	2	31	0
	MS20601-AD4W3	44	871	0
260-HandFinish	AELS-1032-130	3	0	0
	AN3C4A	3	2,130	0
	AN3C5A	2	1,468	0
	AN526C1032R10	2	186	0
	D2965	1	84	0
	D2965-3	1	34	0
	NAS1149C0332R	5	7,039	0

Part Specifications

Specifications could not be found.

Plex 5/29/18 3:58 PM dart.white.jesse

ITEM	QTY -041	P/N	DESCRIPTION
	X	D4766-041	SKIDTUBE
1	1	D2965	CAP
2	1	D2965-3	CAP
3	1	D4766-043	SKIDTUBE SUB ASSY
4	2	AN3C5A	BOLT
5	2	AN526C1032R10	SCREW
6	2	NAS1149C0332R	WASHER

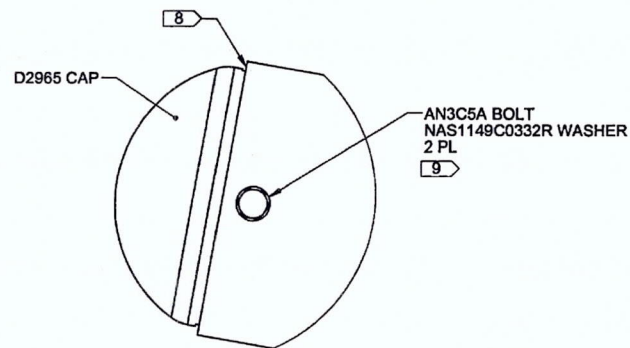


D4766-041 SKIDTUBE

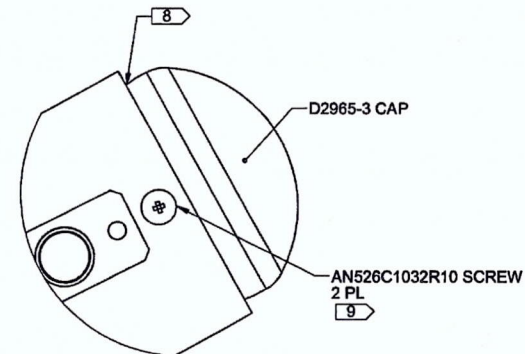
E	SHEET 4: ADD ITEMS 3, 4, 5 & 6. SHEET 6: ADD NOTES 9-13, DETAIL M, SECTION N-N, SECTION P-P & DIM 35.9 WAS 30.2. SHEET 7: Ø0.188 DIM WAS Ø0.125. WEIGHT UPDATE. ADD PROSEAL 1422. REASON: NOR 17-6303, PART6-519	AJS	17.03.30
D	ADDED D5304-1 SWAGED CROSSBOLT SPACER FOR GHL LOCATIONS. ADDED SHT 1. REMOVED D3492-055 PLUG ASSEMBLIES, RE-ORDER SECTIONS	AP	15.11.02
C	RE-ORGANIZED SECTIONAL/DETAIL VIEWS ALL SHTS; IDENTIFICATION MOVED FROM SHT 1 TO SHT 5. SECTION D-D AND DETAIL K 11PL WAS 12PL; MODIFIED D4766-043 FINISH; Ø0.750 WAS Ø0.758 (B4-3); D5085-1 WEB WAS D4766-1; VARIOUS MINOR DIM CHANGES TO D4766-1/045 TO MATCH STD SKIDTUBE PROFILE; 35.9 WAS 23.1 (B7-4); GROUNDING FASTENER MOVED AFT 0.25 (D5-5); D2965 HARDWARE AND GROUNDING HARDWARE CHANGED TO STAINLESS; ADD NOTE 9 (SHT 1) AFT FLOAT HOLES NOW DIMENSIONED AFTER AFT BEND	AP	15.02.25
B	FWD CAP WAS D2965 NOW D2965-3. D3492-055 WAS D3492-051. SWAGING NOW 0.650 WAS 0.661 (C7-2). ADDED BENDING DETAIL TO SHEET 4. MATERIAL D2962-190 WAS D2962-185 (A7-5). ADDED DETAIL L ON SHT 3. ADDED TOP VIEW ON SHT 5. REPLACED D4766-1 WITH D4927-041 ON SHT 3. GROUND HANDLING THRU HOLES SPACERS NOW WELDED. SEE SECTION H-H (B4-2). RE-ORDERED SECTIONS AND DETAILS.	AP	13.08.08
A	NEW ISSUE	AP	13.02.13
REV.	DESCRIPTION	BY	DATE
DESIGN	AP	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	AJS		
CHECKED	ML	DRAWING NO.	REV. E
MFG. APPR.	DP	D4766	SHEET 1 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	SKIDTUBE	NTS
DATE	17.03.30	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

RELEASED
2017-08-11
ECW17-547

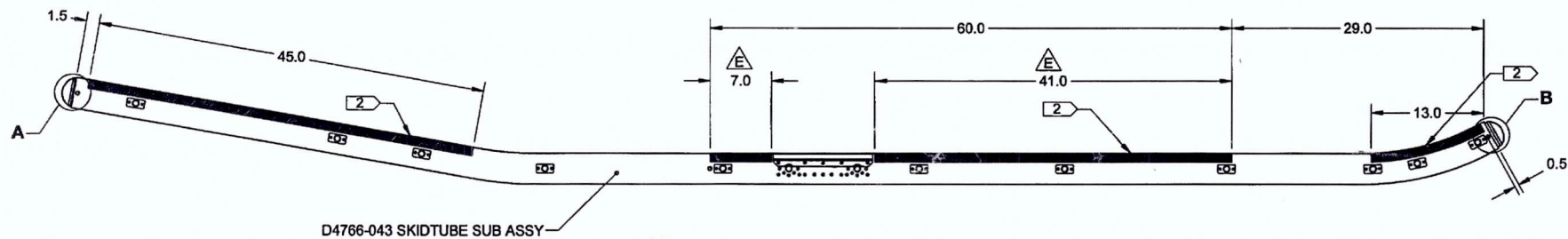
APPROVED



DETAIL A
SCALE 6X



DETAIL B
SCALE 6X



D4766-041 SKIDTUBE

NOTES:

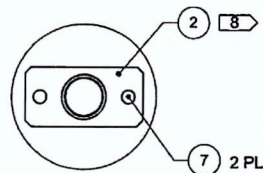
- 1) MATERIAL: N/A
- 2) FINISH: PAINT TOP SURFACE OF SKIDTUBE WITH MIL-W-5044 ANTI-SKID PAINT (WING WALK) AS INDICATED TO 1.00 ABOVE CENTERLINE PER DART QSI 005 4.4
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: 34.6 lbs
- 8) SEAL MATING SURFACES WITH SIKAFLEX -241/-291 OR PROSEAL P/S 890/1422 OR MIL-S-8802 CLASS B2 SEALANT
- 9) INSTALL FASTENERS WET WITH SIKAFLEX -241/-291 OR PROSEAL P/S 890/1422 OR MIL-S-8802 CLASS B2 SEALANT

RELEASED
2017-08-11

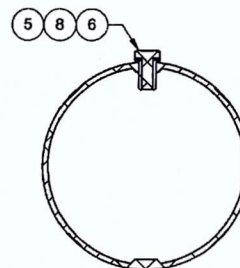
APPROVED

DESIGN	AP	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	AJS		
CHECKED	ML	DRAWING NO.	REV. E
MFG. APPR.	DP	D4766	SHEET 2 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	SKIDTUBE	NTS
DATE	17.03.30	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

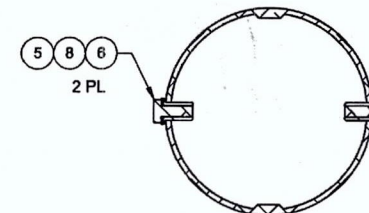
ITEM	QTY -043	P/N	DESCRIPTION
	X	D4766-043	SKIDTUBE SUB ASSY
1	11	D4686-1	SPACER
2	22	D4753-1	DOUBLER
3	1	D4766-045	SKIDTUBE SUB ASSY
4	2	D5304-1	CROSSBOLT SPACER
5	3	AELS-1032-130	INSERT
6	3	AN3C4A	BOLT
7	44	MS20601AD4W3	RIVET, BLIND, CSK
8	3	NAS1149C0332R	WASHER



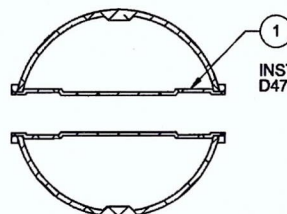
DETAIL E
SCALE 6X
22 PL



SECTION D-D
SCALE 6X



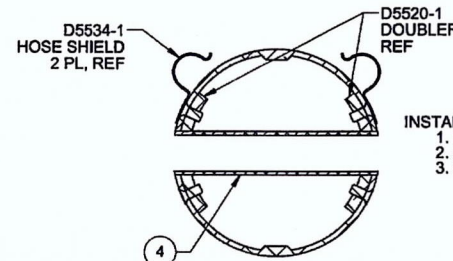
SECTION F-F
SCALE 6X



SECTION C-C
SCALE 6X
11 PL

INSTALL D4686-1 SPACER AFTER INSTALLING
D4753-1 DOUBLERS AS FOLLOWS (11 PL)

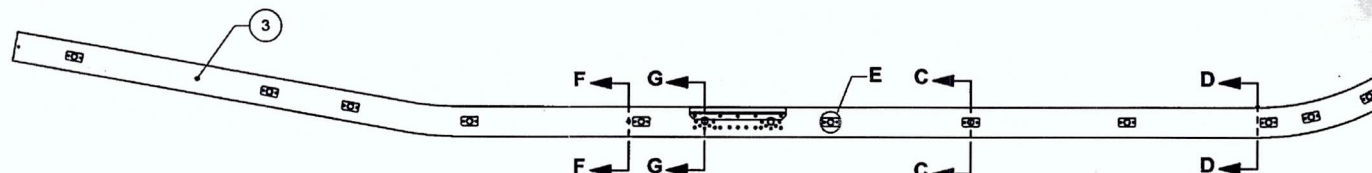
1. INSERT D4686-1 SPACER
2. SWAGE TO $\varnothing 0.650 +0.010/-0.000$ X 1.0 DEEP PER QSI 002
3. TRIM/GRIND FLUSH PER QSI 002



SECTION G-G
SCALE 6X
2 PL

INSTALL D5304-1 SPACER AS FOLLOWS (2 PL)

1. INSERT D5304-1 SPACER
2. SWAGE TO $\varnothing 0.565 +0.005/-0.000$ X 1.0 DP PER QSI 002
3. OPEN THRU HOLE TO $\varnothing 0.625$



D4766-043 SKIDTUBE SUB ASSY Δ

NOTES:

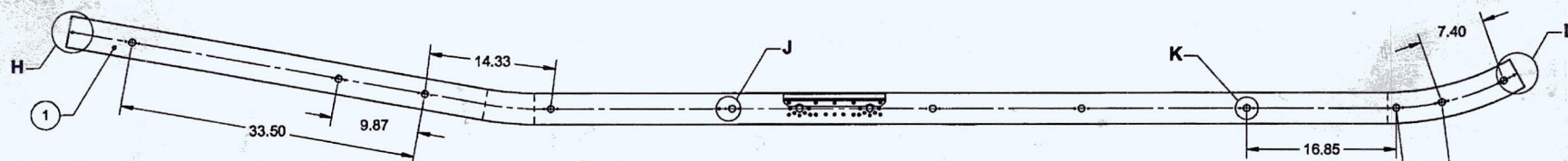
- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME (REF 4.2.1.3.3) AND PAINT WHITE PER DART QSI 005 4.2
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 33.9 lbs
- 8) SEAL FAYING SURFACES USING PROSEAL P/S 890/1422 OR MIL-S-8802 CLASS B2 SEALANT

RELEASED
2017-08-11

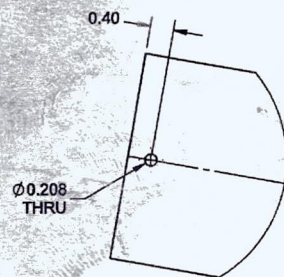
APPROVED

DESIGN	AP	DART AEROSPACE USA, INC.	
DRAWN	AJS	EUGENE, OR	
CHECKED	ML	DRAWING NO.	REV. E
MFG. APPR.	DP	D4766	SHEET 3 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	SKIDTUBE	NTS
DATE	17.03.30	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

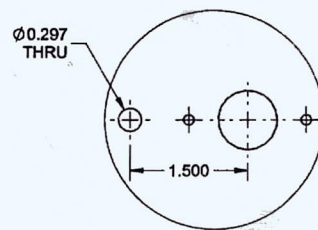
ITEM	QTY	P/N	DESCRIPTION
	-045		
	X	D4766-045	SKIDTUBE SUB ASSY
1	1	D4766-1	SKIDTUBE
2	1	D5085-1	WEB
3	2	D5520-1	DOUBLER
4	2	D5534-1	HOSE SHIELD
5	58	CR3212-5-05	CSK RIVET, CHERRY MAX
6	10	CR3213-5-06	RIVET, CHERRY MAX



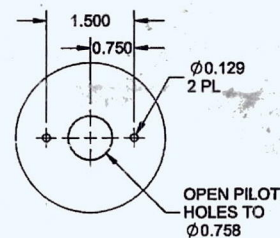
D4766-045 SKIDTUBE SUB ASSY



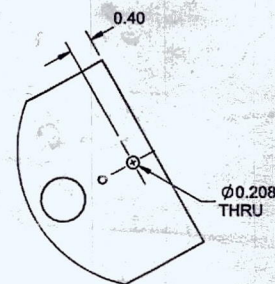
DETAIL H
SCALE 6X



DETAIL J
SCALE 4X



DETAIL K
11 PL. (BOTH SIDES)
SCALE 6X



DETAIL L
SCALE 6X

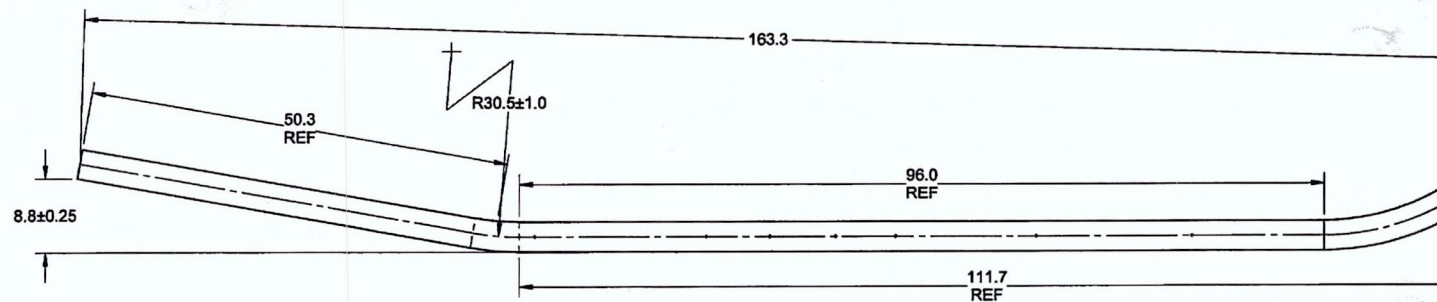
NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 32.9 lbs

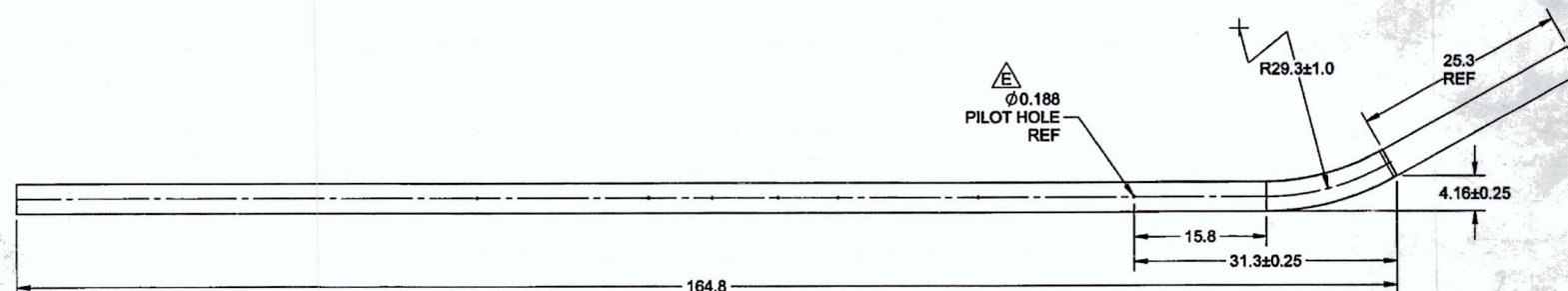
DESIGN	AP	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	AJS		
CHECKED	ML	DRAWING NO.	REV. E
MFG. APPR.	DP	D4766	SHEET 4 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	SKIDTUBE	NTS
DATE	17.03.30	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

RELEASED
2017-08-11

APPROVED



D4766-045 SKIDTUBE SUB ASSY
(BENDING DETAIL, AFT BEND)

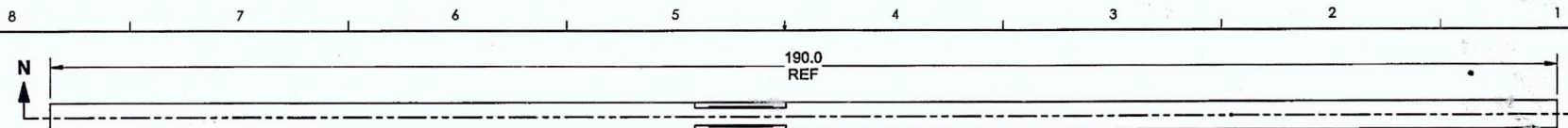


D4766-045 SKIDTUBE SUB ASSY
(BENDING DETAIL, FWD BEND)

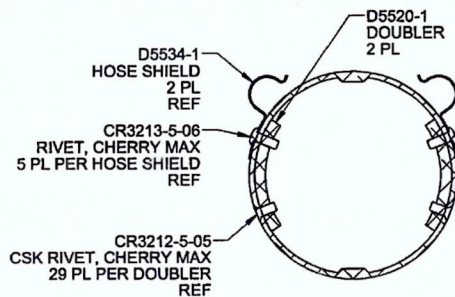
RELEASED
2017-08-11

APPROVED

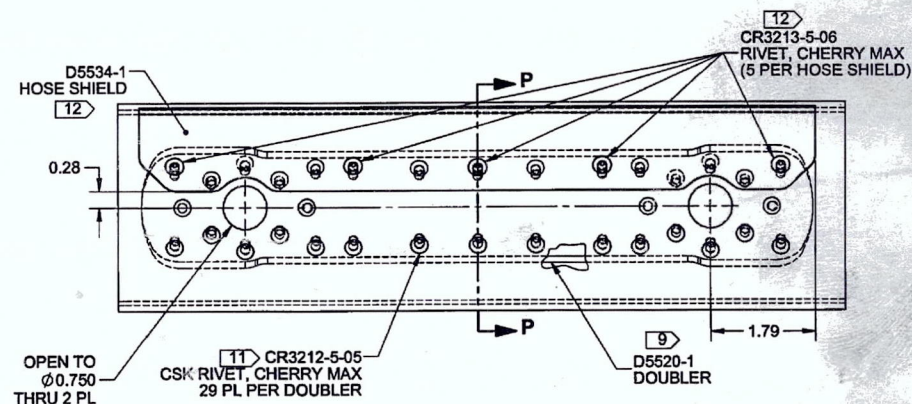
DESIGN	AP	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	AJS		
CHECKED	ML	DRAWING NO.	REV. E
MFG. APPR.	DP	D4766	SHEET 5 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	SKIDTUBE	NTS
DATE	17.03.30	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONVICTION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	



D4766-045 SKIDTUBE SUB ASSY
(ASSEMBLY DETAIL)



SECTION P-P



DETAIL M
SCALE 7X

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: N/A
- 8) INSERT D5085-1 WEB INTO D4766-1 EXTRUSION IN LOCATION SHOWN AND BOND INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX -241/-291 ADHESIVE PER DART QSI 015.
- 9) LOCATE THE D5520-1 DOUBLER USING THE $\phi 0.188$ PILOT HOLES ON THE SKIDTUBE AND DOUBLER.
- 10) LOCATE QTY (34) HOLES ONTO THE SKIDTUBE PER D5520-1 DOUBLER AND DRILL $\phi 0.161$ THRU SKIDTUBE AND DOUBLER USING DT 10309
- 11) COUNTERSINK THE SKIDTUBE $\phi 0.286 \times 100$ (29 PL) AND INSTALL EACH D5520-1 DOUBLER USING QTY (29) CR3212-5-05 CSK RIVETS
- 12) FOR INSTALLATION OF THE D5534-1 HOSE SHIELD:
 - INSTALL ON FINISHED (PAINTED) SKIDTUBES ONLY
 - COAT THE FAYING SURFACES WITH PROSEAL 890/1422.
 - INSTALL THE QTY (5) CR3213-5-06 RIVETS WET USING PROSEAL 890/1422

RELEASED
2017-08-11

APPROVED

DESIGN	AP	DART AEROSPACE USA, INC.	
DRAWN	AJS	EUGENE, OR	
CHECKED	ML	DRAWING NO.	REV. E
MFG. APPR.	DP	D4766	SHEET 6 OF 7
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	SKIDTUBE	NTS
DATE	17.03.30	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

